MW-1B

CLIENT Xcel Energy
PROJECT NAME Comanche Station
PROJECT NUMBER 10217175
PROJECT LOCATION Pueblo, CO
DATE STARTED 08/07/20 11:09 **COMPLETED** 08/11/20 09:14
WELL LOCATION 559477.98 N 2264365.76 E
DRILLING CONTRACTOR Dakota Drilling
GROUND ELEVATION 4805.54 ft **HOLE DIAMETER** 8
DRILLING METHOD HSA/NX/AR
GROUND WATER LEVELS:
LOGGED BY E. Munoz **CHECKED BY**
AFTER DRILLING 28.99 ft / Elev 4776.55 ft
NOTES

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0							Casing Top Elev: 4807.72 (ft) Casing Type: 2-in PVC
	SS	83	18-12-15-23 (27)	CL		LEAN CLAY, SILTY, (CL) brown (10YR 4/3), dry, soft to stiff, non plastic, stiffness and plasticity increase gradually with depth, some gravel in top 6in	
	SS	100	23-27-28-23 (55)				
5	MC	100	4-5			5.0	
	SS	92	12-31-40-50 (71)			FAT CLAY, (CH) yellowish brown to brownish yellow (10YR 5/4), dry to moist, stiff, laminated, medium plasticity, trace sand, iron oxide staining, relict shale structure, iron staining and gypsum recrystallization along fractures and bedding planes, some high-angle to vertical fractures	
	SS	100	50			8.5 Sample collected for moisture & permeability	
10				CH			
	SS	100	20-33-50 (83)				Bentonite Chips, Hydrated in Lifts
	SS	100	22-50				
15	SS	100	50			15.0	
	RC NX	40				SHALE, highly weathered, laminated, gray with yellowish brown (10YR 5/1), dry, iron oxide staining, clayey and weak along fractures and bedding planes, high angle to vertical fractures with iron staining and gypsum recrystallization	
20							
	RC NX	80					
25							
	RC NX	60				Sample collected for moisture & permeability	
30						30.0	
	RC NX	40					10-20 Silica Sand 0.010-in Slotted Screen
						33.0	
35							

(Continued Next Page)

CLIENT Xcel Energy **PROJECT NAME** Comanche Station

PROJECT NUMBER 10217175 **PROJECT LOCATION** Pueblo, CO

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
35							
40	RC NX	80				SHALE, slightly weathered, laminated, black (N1), wet, iron oxide staining, weathered and iron-stained along bedding planes and fractures, some high angle to vertical fractures, light gray bentonitic clay zone at 38.5ft *(continued)*	
						40.0	
45	RC NX	100				SHALE, unweathered, laminated, black (N1), damp, bentonitic clayey zones and some mid-angle fractures	
						43.0	
50	RC NX	100				SHALE, unweathered, laminated, black (N1), dry, strong, two dry mid-angle fractures at 47.5ft and 51.5ft (slickensided), moist bentonitic clay zone at 55ft	
55	RC NX	100					Coated Bentonite Pellets
60	RC NX	90					
	RC NX	83					
65	RC NX	100					
						65.0	

Bottom of borehole at 65.0 feet.

MW-2B

CLIENT Xcel Energy
PROJECT NAME Comanche Station
PROJECT NUMBER 10217175
PROJECT LOCATION Pueblo, CO
DATE STARTED 08/11/20 12:35 **COMPLETED** 08/12/20 11:10
WELL LOCATION 560463.2 N 2264515.56 E
DRILLING CONTRACTOR Dakota Drilling
GROUND ELEVATION 4799.33 ft **HOLE DIAMETER** 8
DRILLING METHOD HSA/NX/AR
GROUND WATER LEVELS:
LOGGED BY E. Munoz **CHECKED BY**
AFTER DRILLING 16.06 ft / Elev 4783.27 ft
NOTES

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0	SS	75	5-5-5-5 (10)	CL		0.7 LEAN CLAY, SILTY, (CL) gray (10YR 5/1), dry, soft, non plastic, trace gravel, trace roots
	SS	75	5-7-12-15 (19)			LEAN CLAY, (CL) light yellowish brown to brown (10YR 6/4), dry to moist, stiff, low plasticity, relict shale structure, gypsum recrystallization on bedding planes and fractures
5	MC	83	17-33			Sample collected for moisture & permeability 5.0
	SS	100	9-10-50 (60)	CL		
10	SS	100	20-15-19-21 (34)			
	SS	100	3-9-14-15 (23)			
	SS	100	13-16-18-18 (34)			
15	SS	100	13-21-22-18 (43)			16.0
	SS	100	11-15-20-24 (35)	CL		LEAN CLAY, (CL) brown (10YR 5/3), moist, stiff, low plasticity, increasing shale fragments
20	SS	100	23-27-36-33 (63)			20.0
	MC	100	19-31			21.0 SHALE, highly weathered, laminated, very dark grayish brown (10YR 3/2), dripping to damp, iron oxide staining, heavily fractured, clayey with iron staining and gypsum recrystallization along bedding planes and fractures
	SS	100	21-27-25-29 (52)			Sample collected for moisture & permeability
25	SS	100	24-50			
	RC NX	45				
30						
	RC NX	100				
35						35.0

WELL DIAGRAM

Casing Top Elev: 4801.72 (ft)
Casing Type: 2-in PVC

Bentonite Chips, Hydrated in Lifts

10-20 Silica Sand

0.010-in Slotted Screen

(Continued Next Page)

CLIENT Xcel Energy **PROJECT NAME** Comanche Station

PROJECT NUMBER 10217175 **PROJECT LOCATION** Pueblo, CO

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
35	RC NX	100				SHALE, unweathered, laminated, black (N1), damp, iron oxide staining, fractured strong shale with iron staining on fractures, clayey zone at 37ft	
40	RC NX	100				40.0 SHALE, unweathered, laminated, black (N1), damp, fractured strong shale, wet along fractures but moist on fresh breaks	
45	RC NX	100					
50	RC NX	100				49.0 SHALE, unweathered, laminated, black (N1), dry, unfractured strong shale	
55	RC NX	93					Coated Bentonite Pellets
60	RC NX	96					
65	RC NX	93					
70	RC NX	140				Sample collected for moisture & permeability 70.0	

Bottom of borehole at 70.0 feet.

CLIENT Xcel Energy
PROJECT NAME Comanche Station
PROJECT NUMBER 10217175
PROJECT LOCATION Pueblo, CO
DATE STARTED 08/12/20 14:00 **COMPLETED** 08/13/20 14:46
WELL LOCATION 560238.51 N 2261884.78 E
DRILLING CONTRACTOR Dakota Drilling
GROUND ELEVATION 4826.41 ft **HOLE DIAMETER** 8
DRILLING METHOD HSA/NX/AR
GROUND WATER LEVELS:
LOGGED BY E. Munoz **CHECKED BY**
▼ **AFTER DRILLING** 36.54 ft / Elev 4789.87 ft
NOTES

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0				CL		0.3 LEAN CLAY, SILTY, (CL) brown (7.5YR 5/2), dry, soft, non plastic, with roots	Casing Top Elev: 4826.41 (ft) Casing Type: 2-in PVC
	SS 1	67	1-3-3-5 (6)			LEAN CLAY, SILTY, (CL) light gray (10YR 7/2), dry, soft, non plastic, loess	
	SS 2	100	8-8-9-10 (17)	CL			
5	MC 3	63	11-23				
	SS 4	100	10-16-21-22 (37)			7.5 LEAN CLAY, SILTY, (CL) light yellowish brown (10YR 6/4), dry to moist, medium stiff, low plasticity, trace fine to coarse sand, sand component increases with depth, gypsum crystals present	
	SS 5	100	8-7-12-14 (19)	CL			
10	SS 6	100	10-16-12-11 (28)			12.0	
	SS 7	100	16-19-27-39 (46)	SW		WELL GRADED SAND, SILTY, (SW) reddish brown (5YR 5/3), well graded, rounded, fine to coarse grained, dry to moist, dense, with gravel	
15	MC 8	100	50			Sample collected for moisture & permeability 15.0	
						16.0	
	SS 9	0		GP		POORLY GRADED GRAVEL, SANDY, (GP) reddish brown (5YR 5/3), poorly graded, rounded, medium grained, moist, dense, with silt, logged from auger cuttings, sampler refusal due to gravel and cobbles 18.0	
	SS 10	100	38-28-50/3"			WELL GRADED SAND, SILTY, (SW) reddish brown (5YR 5/3), well graded, rounded, fine to coarse grained, moist, dense, with fine to coarse gravel, lens of SP fine light yellowish brown (10YR 6/4) sand at 22.5ft	Bentonite Chips, Hydrated in Lifts
20							
	SS 11	75	35-50	SW			
	SS 12	50	8				
25						25.5	
	SS 13	100	9-7-15-21 (22)			LEAN CLAY, (CL) yellowish brown (10YR 5/6), moist, medium stiff, medium plasticity, lens of wet fine sand at 36.5	
	SS 14	100	7-10-13-20 (23)				
30	SS 15	100	8-12-15-19 (27)	CL			
	SS 16	100	7-11-19-23 (30)				
	SS 17	100	8-14-17-17 (31)				
35							

(Continued Next Page)

CLIENT Xcel Energy **PROJECT NAME** Comanche Station

PROJECT NUMBER 10217175 **PROJECT LOCATION** Pueblo, CO

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
35	SS	100	7-8-16-16 (24)	CL		LEAN CLAY, (CL) yellowish brown (10YR 5/6), moist, medium stiff, medium plasticity, lens of wet fine sand at 36.5 *(continued)*	
	MC	75	10-20			Sample collected for moisture & permeability	
						38.0	
						FAT CLAY, (CH) yellowish brown (10YR 5/6), wet, medium stiff, high plasticity, lenses of wet sandy clay, gypsum present, some subrounded coarse sand in clay at 54-56.6ft	
40	SS	100	5-8-11-15 (19)			39.0	
	SS	100	5-7-9-12 (16)				
	SS	100	5-9-9-11 (18)				
45	SS	100	3-6-9-12 (15)				
	SS	100	4-5-8-9 (13)	CH			10-20 Silica Sand
50	SS	100	6-7-11-16 (18)				0.010-in Slotted Screen
55	RC NX	88					
	RC NX	90				56.5	
						SHALE, highly weathered, laminated, very dark grayish brown (10YR 3/2), damp, iron oxide staining, weak, clayey, fractured (including vertical fractures) with iron staining on fractures and bedding planes	
60						57.5	
						SHALE, slightly weathered, laminated, very dark greenish gray (10GY 3/1), damp, iron oxide staining, weak, no mid- to high-angle fractures, iron staining and pyrite on bedding planes	
						60.0	
	RC NX	100				SHALE, unweathered, laminated, black (7.5YR 2.5/1), damp, medium-strong, no mid- or high-angle fractures (bedding plane only)	
65							
	RC NX	100					
70						69.5	
						SHALE, unweathered, laminated, black (7.5YR 2.5/1), dry, strong, unfractured	
	RC NX	100					
75							Coated

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CLIENT Xcel Energy **PROJECT NAME** Comanche Station

PROJECT NUMBER 10217175 **PROJECT LOCATION** Pueblo, CO

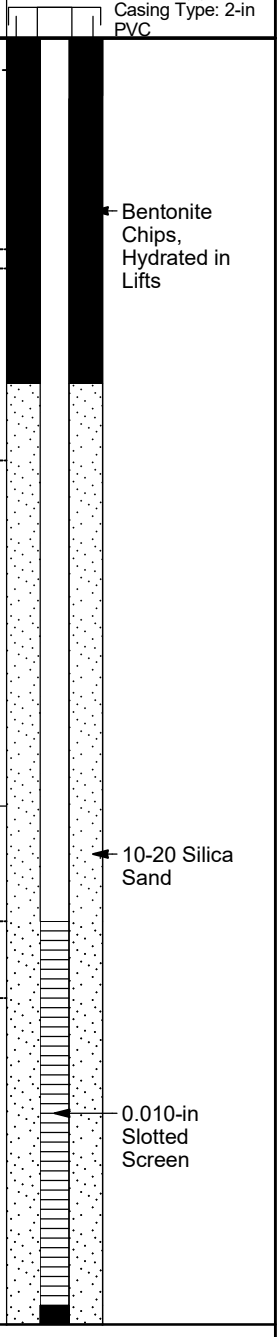
DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
75						SHALE, unweathered, laminated, black (7.5YR 2.5/1), dry, strong, unfractured *(continued)*	Bentonite Pellets
80	RC NX	100					
85	RC NX	100					
90	RC NX	100				Sample collected for moisture & permeability	
					90.0	Bottom of borehole at 90.0 feet.	

W-2A

CLIENT Xcel Energy
PROJECT NAME Comanche Station
PROJECT NUMBER 10217175
PROJECT LOCATION Pueblo, CO
DATE STARTED 08/03/20 10:36 **COMPLETED** 08/04/20 08:01
WELL LOCATION 561935.18 N 2267068.03 E
DRILLING CONTRACTOR Dakota Drilling
GROUND ELEVATION 4825.65 ft **HOLE DIAMETER** 8
DRILLING METHOD HSA/NX/AR
GROUND WATER LEVELS:
LOGGED BY E. Munoz **CHECKED BY**
▼ **AFTER DRILLING** 24.81 ft / Elev 4800.84 ft
NOTES

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0				ML		0.8 SILT, (ML) very dark brown (10YR 2/2), dry, soft, non plastic, some fine to medium sand
				CL		LEAN CLAY, SILTY, (CL) light yellowish brown (10YR 6/4), dry, soft to medium stiff, low plasticity, trace fine sand
5						5.5
				CL		6.0 LEAN CLAY, SILTY, (CL) very light brown (10YR 7/4), dry, medium stiff, low plasticity, with fine to coarse sand
				CL		LEAN CLAY, (CL) yellowish brown (10YR 5/4), moist to dry, soft to stiff, laminated, medium plasticity, iron oxide staining, stiffness increases with depth; shale-derived clay
10						11.0
				CL		LEAN CLAY, (CL) yellowish brown to yellow (10YR 5/4), moist, stiff, laminated, medium plasticity, iron oxide staining, shale-derived clay
15	Not Sampled					
20						20.0
						SHALE, highly weathered, laminated, gray (N5), gypsiferous, damp, iron oxide staining, highly fractured, weak
						23.0
						SHALE, highly weathered, laminated, gray (N5), gypsiferous, damp to wet, iron oxide staining, increasing fractures, iron staining, gypsum
25						25.0 ▼ recrystalization with depth
						SHALE, slightly weathered, laminated, black (N1), damp to wet, iron oxide staining, medium-strong
30						33.5

WELL DIAGRAM



Bottom of borehole at 33.5 feet.

CLIENT Xcel Energy
PROJECT NAME Comanche Station
PROJECT NUMBER 10217175
PROJECT LOCATION Pueblo, CO
DATE STARTED 07/30/20 12:35 **COMPLETED** 08/06/20 17:12
WELL LOCATION 561930.73 N 2267068.12 E
DRILLING CONTRACTOR Dakota Drilling
GROUND ELEVATION 4825.6 ft **HOLE DIAMETER** 8
DRILLING METHOD HSA/NX/AR
GROUND WATER LEVELS:
LOGGED BY E. Munoz **CHECKED BY**
▼ **AFTER DRILLING** 37.15 ft / Elev 4788.45 ft Rising; Not Static
NOTES

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0							Casing Top Elev: 4827.8 (ft) Casing Type: 2-in PVC
	SS 1	100	7-7-8-9 (15)	ML		0.8 SILT, (ML) very dark brown (10YR 2/2), dry, soft, non plastic, some fine to medium sand	
	SS 2	100	6-6-7-7 (13)	CL		LEAN CLAY, SILTY, (CL) light yellowish brown (10YR 6/4), dry, soft to medium stiff, low plasticity, trace fine sand	
5	SS 3	100	6-10-12-10 (22)			5.5	
	MC 4	75	3-5	CL		6.0 LEAN CLAY, SILTY, (CL) very light brown (10YR 7/4), dry, medium stiff, low plasticity, with fine to coarse sand 7.0	
				CL		LEAN CLAY, (CL) yellowish brown (10YR 5/4), moist to dry, soft to stiff, laminated, medium plasticity, iron oxide staining, stiffness increases with depth; shale-derived clay Sample collected for moisture & permeability	
10	SS 5	100	12-13-15-27 (28)				
	MC 6	75				Sample collected for moisture & permeability 11.0	
	RC NX 7	25		CL		LEAN CLAY, (CL) yellowish brown to yellow (10YR 5/4), moist, stiff, laminated, medium plasticity, iron oxide staining, shale-derived clay	
15							
	RC NX 8	70					
20						20.0	
	RC NX 9	100				SHALE, highly weathered, laminated, gray (N5), gypsiferous, damp, iron oxide staining, highly fractured, weak 23.0	
25						SHALE, highly weathered, laminated, gray (N5), gypsiferous, damp to wet, iron oxide staining, increasing fractures, iron staining, gypsum recrystalization with depth 25.0	
	RC NX 10	53				SHALE, slightly weathered, laminated, black (N1), damp to wet, iron oxide staining, medium-strong Sample collected for moisture & permeability 29.0	Bentonite Chips, Hydrated in Lifts
30							
	RC NX 11	90				34.0	
35							

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CLIENT Xcel Energy **PROJECT NAME** Comanche Station

PROJECT NUMBER 10217175 **PROJECT LOCATION** Pueblo, CO

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
35							
40	RC NX	100				SHALE, unweathered, laminated, very dark greenish gray (5GY 3/1), gypsum seams, bentonitic clay at 38 & 39', damp, unfractured *(continued)*	
						40.0	
45	RC NX	70				SHALE, unweathered, laminated, gray (N5), gypsum seams, bentonitic clay at 51', damp, unfractured	
						45.0	
50	RC NX	100				SHALE, unweathered, laminated, gray to black (N1), dry, unfractured	
55	RC NX	100					
60	RC NX	100					
65	RC NX	100					10-20 Silica Sand
	RC NX	100				Sample collected for moisture & permeability	0.010-in Slotted Screen
						65.0	
70	RC NX	100					
75						75.0	

Bottom of borehole at 75.0 feet.

CLIENT Xcel Energy
PROJECT NAME Comanche Station
PROJECT NUMBER 10217175
PROJECT LOCATION Pueblo, CO
DATE STARTED 08/04/20 10:01 **COMPLETED** 08/05/20 11:17
WELL LOCATION 560214.93 N 2267090.86 E
DRILLING CONTRACTOR Dakota Drilling
GROUND ELEVATION 4795.21 ft **HOLE DIAMETER** 8
DRILLING METHOD HSA/NX/AR
GROUND WATER LEVELS:
LOGGED BY E. Munoz **CHECKED BY**
▼ **AFTER DRILLING** 4.86 ft / Elev 4790.35 ft
NOTES

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0						
	SS	75	2-2-4-3 (6)	CL		1.0 LEAN CLAY, SILTY, (CL) very dark brown (10YR 2/2), dry to moist, soft, non plastic
				CL		2.0 LEAN CLAY, SILTY, (CL) dark yellowish brown (10YR 4/6), moist, soft, low plasticity
	SS	79	3-4-7-9 (11)	CL		LEAN CLAY, SILTY, (CL) light yellowish brown (10YR 6/4), moist, soft, medium plasticity
5	MC	63	4-8	CL		4.0 5.0 ▼ LEAN CLAY, SILTY, (CL) yellowish brown (10YR 5/4), moist, medium stiff, medium plasticity
	SS	92	6-13-21-26 (34)	CL		LEAN CLAY, (CL) yellowish brown with very dark grayish brown (10YR 5/6), moist, stiff, mottled, medium plasticity, recrystallized gypsum and relict shale lamination (shale-derived)
	SS	100	16-24-50 (74)	CL		7.0 LEAN CLAY, (CL) grayish brown (10YR 5/2), moist to dry, very stiff, laminated, medium plasticity, iron oxide staining, healed fractures, relict shale structure (shale-derived)
10						10.0
	RC NX	90				SHALE, highly weathered, laminated, dark gray with brownish yellow (10YR 4/1), damp, iron oxide staining, weak with clays along fractures and bedding planes, some vertical to near-vertical fractures present with iron-staining and gypsum recrystallization
						12.0 Sample collected for moisture & permeability
15						15.0
	RC NX	83				SHALE, highly weathered, laminated, brown with brownish yellow (10YR 6/6), damp to wet, iron oxide staining, matrix strong, weak along bedding planes and fractures, some near-vertical fractures with iron staining and gypsum recrystallization
20						20.0
	RC NX	100				21.0 SHALE, slightly weathered, laminated, dark grayish brown to black (10YR 4/2), damp to wet, iron oxide staining, strong with iron-stained fractures
25						SHALE, unweathered, laminated, black (N1), damp, strong, unfractured, gypsum seams, weak clayey zones 25-27 ft
	RC NX	100				27.0 SHALE, unweathered, laminated, black (N1), dry, unfractured, gypsum seams
30						
	RC NX	21				
35	RC NX	67				

WELL DIAGRAM
Casing Top Elev: 4797.54 (ft)
Casing Type: 2-in PVC
Bentonite Chips, Hydrated in Lifts
10-20 Silica Sand
0.010-in Slotted Screen

(Continued Next Page)

CLIENT Xcel Energy **PROJECT NAME** Comanche Station

PROJECT NUMBER 10217175 **PROJECT LOCATION** Pueblo, CO

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
35						SHALE, unweathered, laminated, black (N1), dry, unfractured, gypsum seams *(continued)*	Coated Bentonite Pellets
40	RC NX	100					
45	RC NX	100					
50	RC NX	100					
						50.0	

Bottom of borehole at 50.0 feet.

CLIENT Xcel Energy
PROJECT NAME Comanche Station
PROJECT NUMBER 10217175
PROJECT LOCATION Pueblo, CO
DATE STARTED 08/05/20 14:25 **COMPLETED** 08/06/20 11:24
WELL LOCATION 559069.18 N 2266856.4 E
DRILLING CONTRACTOR Dakota Drilling
GROUND ELEVATION 4802.1 ft **HOLE DIAMETER** 8
DRILLING METHOD HSA/NX/AR
GROUND WATER LEVELS:
LOGGED BY E. Munoz **CHECKED BY**
AFTER DRILLING --- Dry
NOTES

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0	SS	100	13-15-19-20 (34)	CL		LEAN CLAY, SILTY, (CL) pale brown (10YR 6/3), dry, soft to stiff, blocky, non plastic, with fine sand, and gravel
	SS	75	15-14-14-20 (28)			
5	MC	56	17-14			Sample collected for moisture & permeability
	SS	100	6-6-7-12 (13)			5.0
	SS	100	8-13-10-12 (23)	ML		6.5 SILT, (ML) pale brown (10YR 7/3), dry to moist, soft, with fine sand, loess
10	MC	75	10-6			Sample collected for moisture & permeability
	SS	75	11-18-20-18 (38)			10.0 WELL GRADED SAND, (SW) light brown to pinkish gray (7.5YR 6/3), well graded, subrounded, fine to coarse grained, moist, loose to medium dense, with gravel
	SS	75	23-24-26-30 (50)			
15	SS	75	16-14-10-7 (24)	SW		
	MC	75				Sample collected for moisture & permeability
	SS	67	8-15-17-20 (32)			18.0
20	SS	100	19-50			20.0 WELL GRADED SAND, CLAYEY, (SW) brown (10YR 5/3), well graded, subangular, fine to coarse grained, moist, medium dense, with gravel, clay component increasing with depth, shale-derived clay in shoe
	SS	33	30-50	SW		
	SS	133	18-50			22.0 SHALE, highly weathered, laminated, black with light olive (N1), damp to dry, iron oxide staining, very weak with iron stained zones along bedding planes, no vertical or high-angle fractures
25						
30						30.0
	RC NX	100				SHALE, unweathered, laminated, black (N1), dry, strong
35						

WELL DIAGRAM
Casing Top Elev: 4804.26 (ft)
Casing Type: 2-in PVC
Bentonite Chips, Hydrated in Lifts
10-20 Silica Sand
0.010-in Slotted Screen

(Continued Next Page)

CLIENT Xcel Energy **PROJECT NAME** Comanche Station

PROJECT NUMBER 10217175 **PROJECT LOCATION** Pueblo, CO

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
35						SHALE, unweathered, laminated, black (N1), dry, strong *(continued)*	
40	RC NX	90					Coated Bentonite Pellets
45	RC NX	100				Sample collected for moisture & permeability	
50	RC NX	90					

44.0

50.0

Bottom of borehole at 50.0 feet.

CLIENT Xcel Energy
PROJECT NAME Comanche Station
PROJECT NUMBER 10217175
PROJECT LOCATION Pueblo, CO
DATE STARTED 08/19/20 10:30 **COMPLETED** 08/19/20 16:00
WELL LOCATION 559069.16 N 2266859.31 E
DRILLING CONTRACTOR Dakota Drilling
GROUND ELEVATION 4802.13 ft **HOLE DIAMETER** 8
DRILLING METHOD HSA/NX/AR
GROUND WATER LEVELS:
LOGGED BY G. Kelly **CHECKED BY**
▼ **AFTER DRILLING** 54.58 ft / Elev 4747.55 ft Rising; Not Static
NOTES

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0							Casing Top Elev: 4804.46 (ft) Casing Type: 2-in PVC
	SS 1		12-12-14-18 (26)	CL		LEAN CLAY, (CL) light brown (7.5YR 6/4), dry, stiff, with sand, and gravel	
	SS 2		17-11-12-17 (23)				
5	SS 3		18-12-9-8 (21)				
	SS 4		5-5-7-9 (12)	ML		6.0 SILT, (ML) light brown (7.5YR 6/4), dry, loess	
	SS 5		10-14-8-8 (22)			9.5	
10	SS 6		13-20-17-14 (37)	SW		WELL GRADED SAND, (SW) brown to dark yellowish brown (10YR 5/3), well graded, fine to coarse grained, moist, loose, with gravel	
	SS 7		11-12-22-32 (34)				
15	SS 8		11-15-12-11 (27)				
	SS 9		22-17-16-12 (33)				Bentonite Chips, Hydrated in Lifts
	SS 10		11-14-22-13 (36)			19.0 CLAYEY SAND, (SW) yellowish brown (10YR 5/4), moist, dense, with gravel	
20	SS 11		28-30-50 (80)	SW			
	SS 12		50			22.0 SHALE, moderately weathered, dark yellowish brown (10YR 2/2), damp, weak, blocky	
	SS 13		50				
25	SS 14		50				
	SS 15		50				
30						30.0 SHALE, unweathered, brownish black (5YR 2/1), dry, strong, unfractued, weak zones at 42'7" to 42'10" and 43' 9" to 43' 10"	
	RC NX						
35							

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CLIENT Xcel Energy **PROJECT NAME** Comanche Station

PROJECT NUMBER 10217175 **PROJECT LOCATION** Pueblo, CO

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
35							
40	RC NX					SHALE, unweathered, brownish black (5YR 2/1), dry, strong, unfractued, weak zones at 42'7" to 42'10" and 43' 9" to 43' 10" *(continued)*	10-20 Silica Sand 0.010-in Slotted Screen
45	RC NX						
50	RC NX						
55	RC NX					55.0 ▽	

Bottom of borehole at 55.0 feet.